

07-10-00

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Jonathan L. Zittrain
Wendy Seltzer
Alexander Macgillivray
Charles Nesson

Serial No.:

Filed:

Herewith

For:

NETWORKED COLLABORATIVE SYSTEM

Box Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

TRANSMITTAL LETTER

Sir:

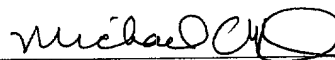
Enclosed for filing are the following documents:

1. Application (12 pages) including specification (8 pages), claims (3 pages), and abstract (1 page);
2. 3 Sheets of informal Drawings (Figures 1-3);
3. Two (2) combined Declaration and Power of Attorney For Patent Application Documents;
4. Four (4) Verified Statements (Declaration) Claiming Small Entity Status (37 CFR 1.9(c) and 1.27(b) - Independent Inventor

The Commissioner is hereby authorized to charge the \$345.00 required fee set forth in 37 C.F.R. 1.16 for filing the subject application to Deposit Account No. 08-0219. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 08-0219.

Respectfully submitted,

Dated: July 6, 2000



Michael A. Diener
Reg. No. 37,122
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Boston, MA 02109
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Attorney Docket No.: 108087-119

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DATE OF DEPOSIT 7/6/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Zittrain et al.

Serial No.:

Filed: Herewith

Title: NETWORKED COLLABORATIVE SYSTEM

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(c) and 1.27(b)) - INDEPENDENT INVENTOR**

I declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Sections 41(a) and (b) of Title 35, U.S.C., to the Patent and Trademark Office with regard to the above-identified invention.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person or entity that could not be classified as a small entity under 37 CFR 1.9(c)-(e).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name: Wendy Seltzer


Signature

6/27/00
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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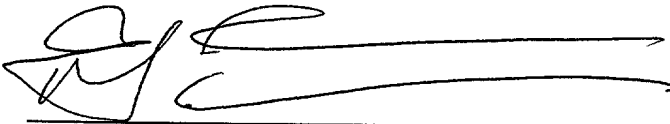
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Name: Alexander Macgillivray


Signature

July 5 2000
Date

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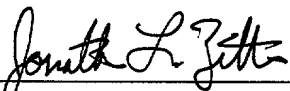
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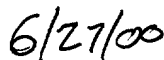
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Name: Jonathan L. Zittrain



Signature



Date

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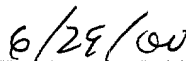
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Name: Charles Nesson



Signature



Date

1 NETWORKED COLLABORATIVE SYSTEM

2 Background of the Invention

3 The present invention relates to a system for communicating among a
4 moderator, participants, and others in a collaborative exchange over a network.

5 There are a number of settings in which it is desirable for participants in a
6 collaborative setting to be able to communicate and exchange ideas, comments,
7 and/or suggestions electronically. For example, while a traditional classroom
8 setting facilitates discussion which can be organized and directed by a teacher,
9 the possibilities are more limited if the students are in different physical locations
10 and participate electronically. In a business context, members of a development
11 team or other group may not be able meet in one physical location or at one time,
12 but may desire to engage in a structured collaborative project.

13 While it is currently possible for people to communicate by email, it would
14 be desirable to have a system that includes multiple messaging applications
15 grouped together, and a system that allows significant flexibility for a moderator
16 of a discussion to control the flow of messages among participants. In addition, it
17 would be desirable to have different types of messaging that could be used
18 among participants or between participants and a moderator.

19
20 Summary of the Invention

21 The present invention includes a system, a platform, and methods for
22 accomplishing a number of tasks related to networked communications among
23 groups of participants, particularly in connection with a collaborative
24 development or other business project, or in an educational setting. The present
25 invention includes a structured system for allowing participants, moderators, and
26 adjunct personnel to interact over a network, preferably the Internet. In an
27 educational context, the system can be part of one or more courses that could be
28 taught over a network; with a course that is taught in person, the present system
29 could be used to supplement such a course.

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1 The communication system of the present invention preferably includes
2 one or more modules and features, including a question module that allows
3 questions to be presented by a moderator (e.g., in an educational setting, a
4 teacher) with opening and closing times; an ability to create discussion pairs or
5 groups, preferably from using information provided by or about the participants;
6 an ability to route questions and comments to others, such as people with
7 additional expertise; and the ability to archive comments. In an educational
8 setting, the participants may be students. In a business setting, the participants
9 may be the members of a development team or other project. The people with
10 additional expertise may be consultants or other employees who are not part of a
11 project, or other faculty members.

12 The system thus provides a flexible mechanism for a moderator to create a
13 network of dialogue among participants and optionally with other adjunct
14 personnel. The system also allows interaction with other modules, such as a
15 registration module. While the system is described here for illustrative purposes
16 in the context of a "teacher" with "students," the system can be used at many
17 levels of education or can be used for other forum or group discussions that may
18 not be "courses," such as in a business context with a moderator and participants
19 from various business units or with different specialties or experiences in a
20 dialogue about ideas for a product or service. The system can be used as a
21 module or subsystem in a larger, scalable, internet education technology with
22 other features, systems, and modules. Other features and advantages will
23 become apparent from the following detailed description, drawings, and claims.

24 Brief Description of the Drawings

25 Fig. 1 is a block diagram showing modules of the system of the present
26 invention.

27 Fig. 2 is a block diagram showing modules used in the questioning module
28 of the system.

29 Fig. 3 is a flow chart showing a method by which questions are provided

by moderators and responded to by participants.

Detailed Description

The system of the present invention is implemented through a server 10 that can be accessed by students and teachers (or more generally, participants and moderators) from personal computers 12. At the current time, a Pentium III 500Mhz server running on Windows NT or Linux should be suitable, but other computers could be used, depending on the characteristics that the system is to have.

Referring to Fig. 1, the system has a number of interfaces and modules in software form and capable of being stored on a disk or other storage medium. These interfaces and modules may be written as Perl scripts and implemented by the server software and hardware.

The application running on the server can include many modules, including a registration module 14, a threaded messaging module 16, a chat module 18, a select audience module 20, and a question module 22; and interfaces, including a participant (student) interface 24 and moderator (teacher) interface 26.

Registration module 14, when accessed by a student through student interface 24, provides a user input form with fields that allows the student to register with the courseware system. The student provides basic personal information, such as name and email, creates a password, and can also provide additional information that may be requested on the form. Such additional information can be requested by the teacher and can be used to classify or group students for discussion purposes. The student can identify particular courses for which he or she is registering and types of interactions (such as participant, auditor, or reduced level participant). For example, a student can thus register for two courses as a participant in the courseware and audit another course. The resulting registration data is stored in a database 30. Particularly in a business context, registration can alternatively be performed by an administrator,

1 department head, team leader, or other appropriate person with knowledge of the
2 backgrounds of the participants. Alternatively, if the necessary information is
3 first provided to a database, registration can be automated.

4 Course data can be created and edited by the teacher for students. The
5 student has limited access through the participant interface to allow the student to
6 view the course data and to view his or her own registration data, but this
7 interface does not allow the student to make changes to any such course or
8 registration data.

9 Moderator interface 26 is preferably intuitive and graphical and allows for
10 course creation and editing. The teacher can add lessons and/or sections to
11 course data and edit those lessons and selections on the fly. The course data that
12 is entered can be generated dynamically into HTML pages that the students can
13 view. The teacher can choose among a set of HTML templates that can be
14 customized by the teacher. The teacher can also create a calendar of times for
15 openings, closings, and other dates for the course.

16 An administrator interface (not shown) can be provided to give access for
17 maintenance purposes. In addition, a course administrator can have access to
18 approve registrations prior to entry in the database.

19 Questioning module 22 is shown in more detail in Fig. 2, which shows a
20 number of modules within questioning module 22. An ask question module 32
21 provides a form that allows a teacher to pose a question to all or part of a class or
22 to students among several classes, such as multiple sections for one course, or for
23 different classes with an overlapping interest. Where appropriate, such as when
24 developing a product or service, all participants can be given access to ask
25 question module 22, so that for a particular line of questions, any participant may
26 serve the role of moderator, or at least be able to pose a question. Similarly, the
27 moderator may also serve as a participant.

28 The question can be asked in such a way to request an answer in one of a
29 number of different formats such as multiple choice, short answer, poll, or
30 pro/con answers, and also to request additional comments. The question thus

preferably has text, a start date, status indicating whether the teacher can use the question for other courses, specification of the audience for the question based on the select audience function, a number of rounds for interactions (described below), and a time when the question will "close." The opening and closing times thus indicate how long the students have to respond.

An answer question module 34 is effectively a response form that allows the student to answer the question. The form is preferably tailored to the type of response that is being requested by the teacher. The student can edit the response through an editing module 36 before the question closes. There can be a late answer option as well to allow a student to answer after the close of the question.

An archive module 38 associated with database 30 (Fig. 1) stores questions and answers after the answering period for the questions that have closed. The process may go through multiple rounds of responses, in which case the archive would make each round's answers available upon the closing of that round.

Referring to Fig. 3, a method for controlling questions using question module 22 is described. The teacher first writes the question, specifies the question type, audience, number of rounds, and due date for that first round (100). The system presents the question, e.g., by sending students an email indication that the question is open, providing a link to a web response form, and providing a unique identification (ID) for email responses (102). The system acknowledges by responding to the teacher to indicate that the question has opened and identifying the parties or groups to whom the message has been sent (104).

The students receive the question by email and see it open on a current assignment page provided by a web server (106). The question also has a link to an appropriate form for answering the question.

The students respond to the question on the web or by email, and can further edit their answers until closing time (108). On receiving responses, the system processes answers and adds them to a database (110). The teacher can view these first round answers as they arrive. If responses are not received, the

1 answer or set of responses as being of interest, that group can be automatically
2 promoted to the threaded messaging area for wider discussion or may be raised
3 in class time or through some other chat or messaging session by the moderator.

4 Other features can be provided for the benefit and/or convenience of the
5 teacher. For example, the teacher can have the ability to cut off a particular
6 student from comments if not using the system properly. The system can also
7 have a feature for scanning messages to highlight particular words or phrases, for
8 example, to see if a student focused quickly on a correct concept, to identify the
9 use of any inappropriate language, or to identify particular language indicating
10 that additional follow-up or some more immediate response is appropriate.

11 Referring again to Fig. 1, select audience module 20 allows teachers to
12 access database 30 through moderator interface 26 to view, categorize, and group
13 students into pairs or larger groups. This grouping can be done randomly, based
14 on fields captured during the registration process, or based on responses to
15 certain types of questions as described above, but need not be limited to one
16 particular course or, in the business context, team. Using the moderator interface
17 26, a moderator can allow other moderators to suggest groupings, including their
18 participants, suggest groupings including the participants of other moderators
19 and can approve suggested groupings. The teacher preferably can view all of the
20 registered member information and use that information to create groups as
21 desired. Alternatively, the select audience function can be automated, based on
22 predefined criteria for grouping students based on registration information or
23 other database information. These audiences can then be used to create the series
24 of question, answer, and response interactions described above.

25 Threaded messaging module 16 allows teachers to create forms in which
26 students can post and read comments via either email or entry in a box on a web
27 page. The system is preferably database driven to allow messages to be grouped
28 in database 30 by students and by subject. Threaded messaging module 16 can
29 also be used for promotion of interesting question, answers or participant
30 interactions to a wider audience for more general discussion either manually by a

1 moderator or automatically as a result of participant collaborative filtering as
2 outlined above.

3 Chat module 18 is a real time communication module that allows live
4 discussion between or among students or among one or more students and a
5 teacher. This module can thus allow a teacher to provide online office hours. In a
6 moderated event, the moderator can receive comments and choose to make them
7 available to the remainder of the group. In addition, the moderator can cut a
8 student off from being able to send messages if appropriate. Chat module 18
9 respects the roles of the participants as defined in the registration module and
10 restricts or enables functionality based on those roles. Chat module 18 can also
11 dynamically generate chat spaces, allowing instant chat rooms for participants
12 who are simultaneously online.

13 Having described preferred embodiments of the present invention, it
14 should be apparent that modifications could be made without departing from the
15 scope of the appended claims.

16 What is claimed is:

1 Claims

2 1. A method for organizing a dialogue of messages between a
3 moderator and a number of participants in communication over a network
4 comprising:
5 obtaining information about the participants;
6 providing to the participants a question;
7 receiving from each of one or more sending participants a first-round
8 message in response to the question;
9 grouping at least some of the participants into groups;
10 for one or more of the sending participants, automatically sending the
11 received first-round message to one or more receiving participants with whom
12 the sending participant is grouped; and
13 receiving from each of one or more of the receiving participants a
14 follow-up message in response to the first-round message from the sending
15 participant.

16 2. The method of claim 1, wherein the groups are based on the
17 registration information entered by participants.

18 3. The method of claim 1, wherein the groups are created randomly.

19 4. The method of claim 1, wherein the groups are created based upon
20 the first-round answers.

21 5. The method of claim 1, further comprising repeating the following
22 steps one or more times: sending one or more of the follow-up messages to one
23 or more receiving participants with whom the sender of the follow-up message is
24 grouped and receiving from one or more recipients of the follow-up message a
25 follow-up message in response.

26 6. The method of claim 1, further comprising receiving from at least
27 some of the participants an indication that the question should be used for further

1 discussion.

2 7. The method of claim 1, further comprising automatically routing
3 messages from a particular round to a specialist in the subject matter of the
4 message.

5 ~~8.~~ A system for organizing messages created among a moderator and a
6 number of participants in communication over a network, the system comprising:
7 a registration module for obtain participant registration information;
8 a select audience module for grouping at least some of the participants into
9 groups;
10 a question module for providing to participants a question, receiving from
11 one or more of the participants a message in response to the question, sending
12 each of one or more of the messages to one or more receiving participants with
13 whom the sender of the message is grouped, and receiving from one or more of
14 the receiving participants a message in response to the message received by the
15 receiving participant.

16 9. The system of claim 8, wherein the system can repeat the process of
17 receiving and sending messages among grouped participants as desired.

18 10. The system of claim 8, wherein the select audience module groups
19 participants randomly.

20 11. The system of claim 8, wherein the select audience module groups
21 participants based on the message sent in response to the question.

22 12. The system of claim 8, wherein the select audience module uses
23 registration information to group participants.

24 13. The system of claim 8, further comprising a chat module that allows
25 participants to send messages in real time over the network while respecting
26 usage rules based on user roles.

1 14. The system of claim 8, further comprising a threaded messaging
2 module that allows messages to be sent, posted, and archived.

3 15. The system of claim 14, wherein messages can be promoted from the
4 question module to the threaded messaging module.

5 16. The system of claim 8, further comprising a chat module that allows
6 participants to send messages in real time over the network, and a threaded
7 messaging module that allows messages to be sent, posted, and archived.

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1 NETWORKED COLLABORATION SYSTEM

2 Abstract of the Disclosure

3 A system for facilitating communications over a network among
4 participants and a moderator includes a question module for asking questions,
5 receiving responses, grouping participants, and providing responses to other
6 participants in a group for further response.

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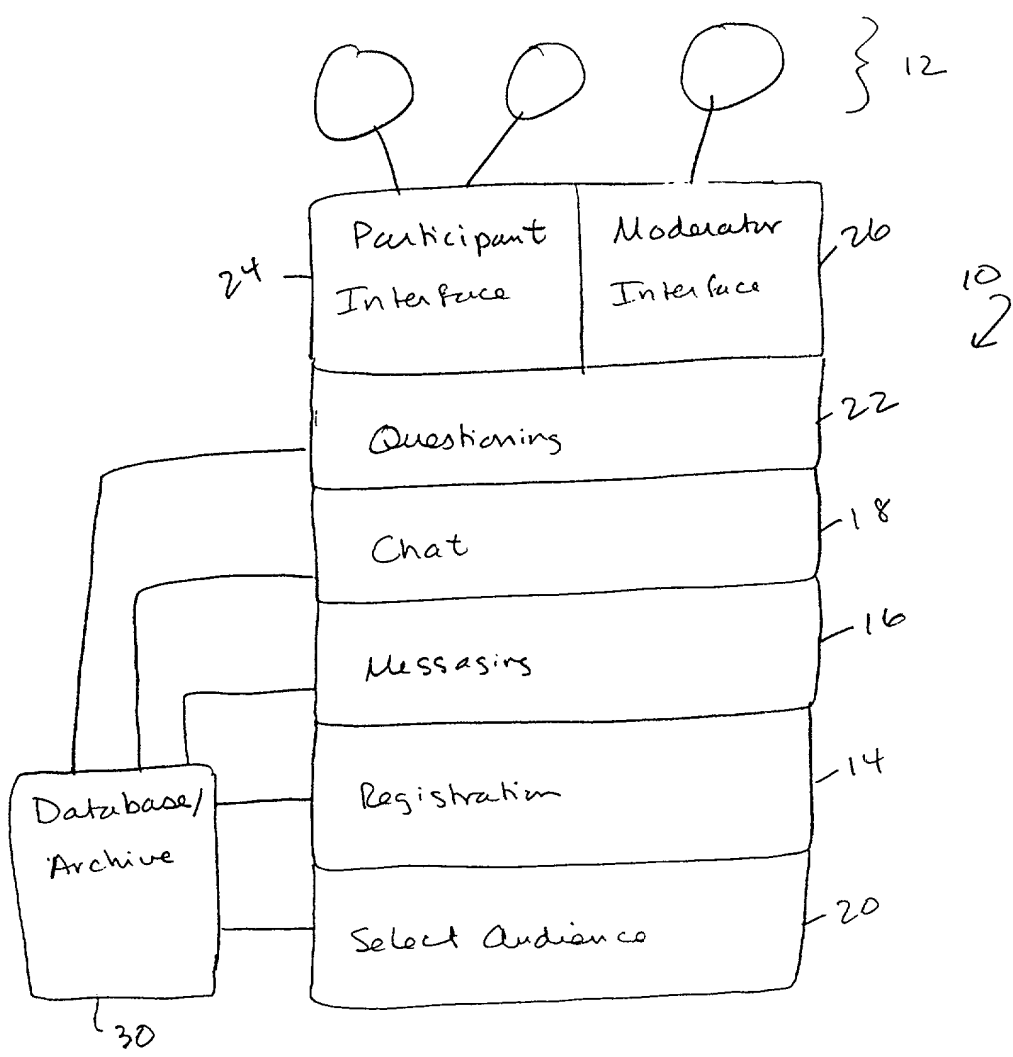


FIG. 1

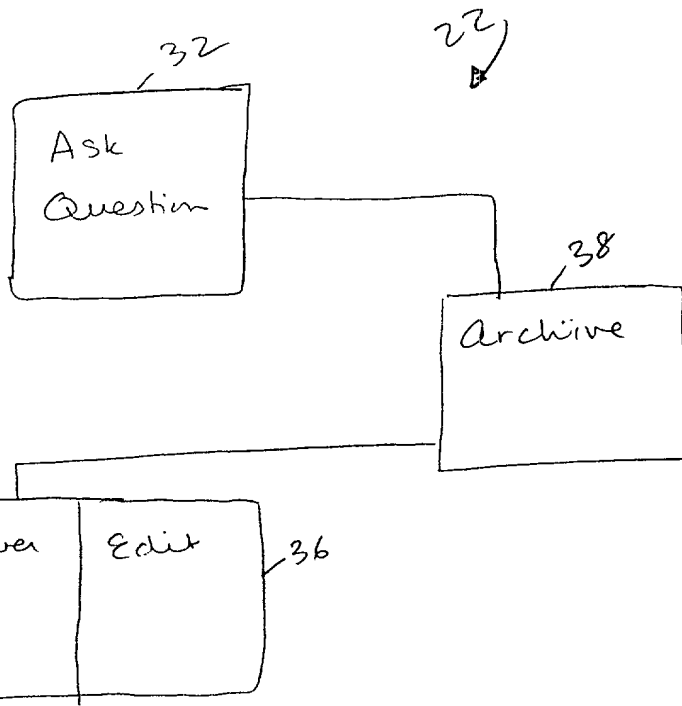


FIG. 2

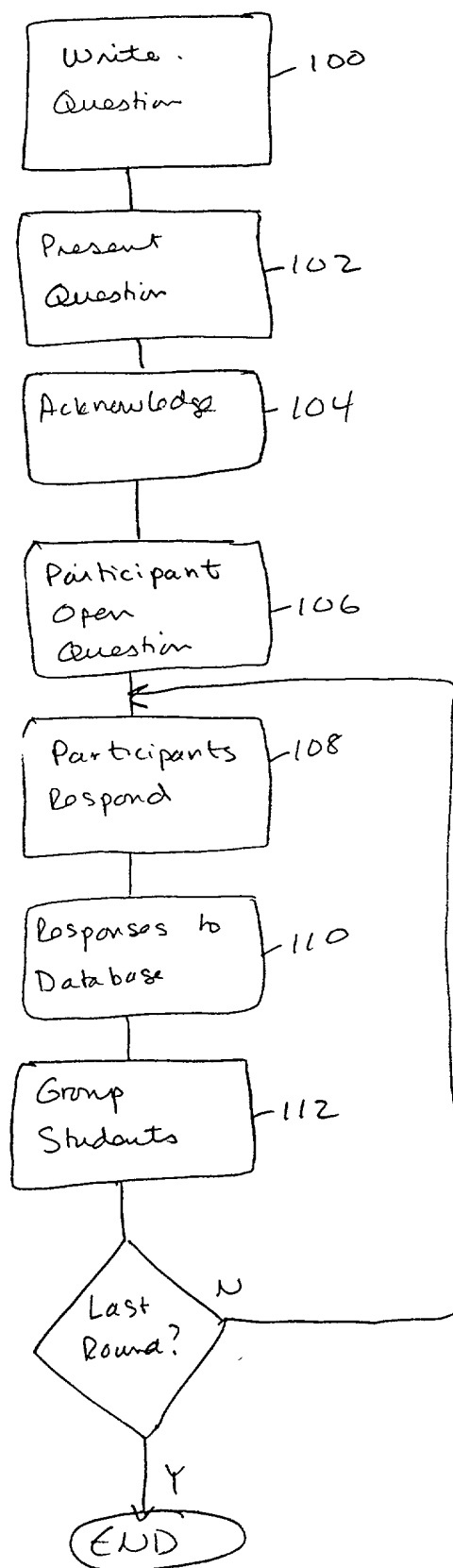


FIG. 3

**COMBINED DECLARATION AND
POWER OF ATTORNEY FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled NETWORKED COLLABORATIVE SYSTEM the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international applications(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by us on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S)
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119**

Country : United States

Application No. : 60/151,731

Date of Filing: August 31, 1999

Priority Claimed

Under 35 U.S.C. § 119 : ☒ Yes ☐ No

009010902-070600

I hereby appoint the following attorney(s) and/or agents to prosecute the above-identified application and transact all business in the Patent and Trademark Office connected therewith:

James B. Lampert	Reg. No. 24,564
Wayne M. Kennard	Reg. No. 30,271
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Hollie L. Baker	Reg. No. 31,321
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Full name of first inventor: Jonathan L. Zittrain

Inventor's signature Jonathan L. Zittrain Date 6/27/00

Citizenship: USA

Residence and Postal Address: 112 Banks Street
Cambridge, MA 02138

Full name of second inventor: Alexander Macgillivray

Inventor's signature Alexander Macgillivray Date 6/27/00

Citizenship: USA

Residence and Postal Address: 34A Irving Street #31
Cambridge, MA 02138

Full name of third inventor: Charles Nesson

Inventor's signature Charles Nesson Date 6/29/00

Citizenship: USA

Residence and Postal Address: 5 Hubbard Park Road
Cambridge, MA 02138

Full name of fourth inventor: Wendy Seltzer

Inventor's signature _____ Date _____

Citizenship: USA

Residence and Postal Address: 330 E. 54th Street, Apt. 5B
New York, NY 10022

Wavelength (nm)	
400	400
410	410
420	420
430	430
440	440
450	450
460	460
470	470
480	480
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My residence, post office address and citizenship are as stated below adjacent to my name.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international applications(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by us on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Country : United States

Application No. : 60/151,731

Date of Filing: August 31, 1999

Priority Claimed

Under 35 U.S.C. § 119 : ☒ Yes ☐ No

I hereby appoint the following attorney(s) and/or agents to prosecute the above-identified application and transact all business in the Patent and Trademark Office connected therewith:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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